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Are There Synergies Between World Bank Partial Credit Guarantees and Private Lending?

Harry Huizinga

One test of the efficacy of World Bank partial credit guarantees is whether they lower the interest rate and lengthen the effective maturity of the part of the credit not covered by the guarantee. Do they?



Summary findings

Since 1994, the World Bank has provided partial credit guarantees to private financiers of several large infrastructure projects in developing countries. A major objective of the partial guarantee program is to leverage Bank resources so as to provide developing countries with better private credit terms.

A real test of the efficacy of World Bank partial credit

guarantees is whether they also lower the interest rate and lengthen the effective maturity of the part of the credit not covered by the World Bank guarantee.

On the basis of deals closed so far, Huizinga finds no evidence that guarantees have affected nonguaranteed interest rates favorably, while the duration of the nonguaranteed credits remains relatively short.

This paper — a product of the Development Research Group — is part of a larger effort in the group to evaluate the impact of World Bank guarantees. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Paulina Sintim-Aboagye, room N9-030, telephone 202-473-8526, fax 202-522-1155, Internet address psintimaboagye@worldbank.org. August 1997. (15 pages)

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Are There Synergies between World Bank Partial Credit Guarantees and Private Lending?

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1. *Introduction*

The World Bank has traditionally provided capital in the form of loans. The provision of loan guarantees by the World Bank for credits made by others, however, has always been a possibility. In July 1994, the World Bank's board (World Bank 1994a) accepted the idea of mainstreaming guarantees as an operational tool. Since then seven guarantees have been extended by the Bank.¹ The total debt covered was approximately \$1 billion by September 1995 (World Bank 1995). The relatively small volume of guarantee transactions may reflect the Bank staff's or borrowers' relative unfamiliarity with the loan guarantee instrument, and some caution as to their ultimate cost effectiveness and usefulness.² A relevant question is whether the deals closed so far meet the objectives set out for the loan guarantees program. Any look at these deals, of course, is provisional, as none of them has yet run its full course. Just from the contractual terms, however, we can already learn a few things. This paper specifically examines whether World Bank guarantees improve the credit terms (in terms of interest rate and credit duration) pertinent to the nonguaranteed part of the overall financing; other possible indirect benefits of guarantees are not considered.

There are two types of World Bank guarantees (World Bank 1995); partial risk guarantees insure against a particular set of sovereign risks, and partial credit guarantees ensure the payment of specific credit installments. A partial risk guarantee, specifically, can insure against the sovereign risk that the government reneges on announced regulation related to the financed project. Alternatively, it can insure against the breach of contract by the government, say, to purchase part of the project's output. In case of a power plant, for instance, the government may have obligated itself to purchase electricity in a certain volume at a certain rate. So far, the World Bank has provided partial risk guarantees in two cases (World Bank 1995): for the Hub Power project (Pakistan 1995), and for the Uch Power Project (Pakistan 1995). For these transactions, it is difficult to assess whether these projects would have received the necessary finance without the partial risk guarantee and, if so, at what rates. At the same time, it may be difficult to determine whether the contractual risk premium overstates or understates the underlying risk. For these reasons, this paper does not examine in any way the contractual terms of the concluded partial risk guarantee deals.

Partial credit guarantees obligate the World Bank to make one or several interest or principal payments on the loan, in case of project default. In practice, the World Bank requires the country to provide a counter-guarantee, which requires the country to reimburse the World Bank in

case the guarantee is exercised. In addition, the country may or may not also guarantee the payments to the private creditor not covered by the World Bank guarantee. Such an additional public guarantee is usually provided. Payments not covered by the World Bank guarantee thus in practice are sovereign debts, in addition to commercial debts. If the project is in the public sector and, perhaps, subject to soft budget constraints, then the nonguaranteed payments are purely sovereign debt. From the creditor's perspective, deals involving World Bank partial credit guarantees thus are hybrid instruments consisting of sovereign debt (payments excluded from the Bank guarantee), and Bank obligations (payments covered by the guarantee). The hybrid nature of partial-credit-guarantee transactions makes it possible to 'decompose' or 'strip' these transactions, and to calculate credit terms separately for the two parts. The credit terms relate to the interest rate and the duration, which is a summary measure of the average maturity of the interest and principal payments due. Duration is a more comprehensive measure of the effective credit length than maturity, which is simply the number of periods till the final payment.

Stripping World Bank guarantee transactions - as to interest rates and duration - requires information on contractual interest rates and on exactly which payments are covered by the guarantee. After the stripping, one can compare the interest rate on the sovereign part of the transaction to other sovereign interest rates for the same country. This comparison informs us whether the World Bank's involvement provides synergies in also improving credit terms on the credit not covered by the World Bank guarantee. This paper presents calculations along these lines for five partial credit transactions concluded since May 1994.³ The deals relate to a telecommunications project (Jordan 1995) and four power generation projects (Philippines 1994; and China 1994, 1995, and 1996). The comparison with unrelated sovereign credits can only be completed for the four power generation projects. This reflects that in the Jordanian telecommunications case there were no public guarantees for payments excluded from the World Bank guarantee.

Two major results emerge. First, the durations of the purely sovereign credits are quite low, and comparable to already outstanding sovereign debt. This reflects that the World Bank guarantee in all cases covers the far-out principle repayment. Thus there is skepticism that the guarantee program can generate longer term private financing to developing countries. Second, World Bank guarantees, although they may have other benefits that are difficult to quantify, do not appear to have 'spilled over' into a lower nonguaranteed sovereign interest rate. In the Philippine case, the opposite may have occurred, while for the three Chinese cases no clear effect on

nonguaranteed sovereign interest rates is found. As discussed in detail below, there are several reasons why one may expect an interest spill-over of either sign. This suggests that it is useful to check before closing any deals whether these deals indeed generate lower interest rates on the sovereign debt. Calculations to this effect can be made a routine part of assessing transactions involving World Bank partial credit guarantees.

The remainder of this paper is as follows. Section 2 discusses broadly the objectives of the World Bank guarantee program. Section 3 discusses how World Bank partial credit guarantees may affect the interest rate on the debt excluded from the guarantee. Section 4 presents the interest rate and duration calculations for the five cases mentioned above. Section 5 concludes.

2. *Objectives of World Bank loan guarantees*

As direct loans, credit guarantees are instruments to promote economic development. Guarantees are attractive and can be low-cost, if they ‘leverage’ Bank resources. Some of the more direct objectives served by credit guarantees are the following:

Sizable and appropriate capital flows to developing countries

Loan guarantees as well as direct loans serve to finance desirable projects. In the case of loan guarantees, the financed projects so far have been large infrastructure projects in the energy and telecommunications fields. Other fields, such as transportation, also are appropriate. World Bank financing of any sort is most useful where countries are constrained in obtaining sufficient private credit at reasonable rates. World Bank credit guarantees ideally relax any private credit constraints. World Bank loans or loan guarantees should indeed enlarge the financing available for the project under consideration. This way, World Bank credit guarantees may ensure that particular projects obtain the necessary financing where otherwise they would not be feasible at all. The ‘marginal’ sovereign credit to a country, though, is not covered by a World Bank credit guarantee, but is rather a straightforward transaction between the country and private capital providers. World Bank guarantees, therefore, may not succeed in relaxing a country’s overall credit constraint.

Credit terms

World Bank loan guarantees in principle can also improve private credit terms. First, of course, guarantees may affect the interest rate pertaining to the nonguaranteed private credits. World Bank guarantees that reduce the interest rate on nonguaranteed credits truly leverage Bank resources. This issue is considered in detail below. Second, developing countries are generally considered to have insufficient access to long term credit, and a benefit of World Bank guarantees then can be to stretch the available credit.⁴ In practice, World Bank partial credit guarantees have insured final principal repayments. It is then no surprise that transactions with World Bank partial credit guarantees typically have longer maturities than stand-alone sovereign credits. This does not imply, however, that World Bank guarantees actually lengthen the duration of the private credit not covered by the guarantee. This issue is also considered below.

Financial market development

A third broad objective is to provide countries with useful experience in dealing with international private capital providers. Such experience involves 'hands-on' experience in constructing credit transactions. Also, guarantee transactions enable a borrowing country to build a track record and reputation as a creditworthy borrower, leading to lower borrowing costs in subsequent transactions. Experience with international capital market transactions may further speed the development of purely domestic financial markets.

3. *Interest rate externalities flowing from World Bank guarantees*

This section reviews several reasons why the joining of World Bank guaranteed and nonguaranteed credit may affect the interest rate pertaining to the nonguaranteed credit. The various possible interest rate externalities imply that the sum interest rate externality in principle can be of either sign. A look at the actual data thus is necessary to resolve whether the externality is favorable or unfavorable. A summing up of possible externalities follows.

The effects of World Bank credit appraisal

In practice, the World Bank relies on prospective private creditors to do their own credit appraisal of a project. The World Bank also does a project appraisal, but probably a less thorough one than if it were the sole credit provider.⁵ All the same, World Bank involvement in a project is

probably taken as a signal of approval by private credit providers.⁶ The participation by the World Bank, therefore, should have a downward effect on required private interest rates. World Bank involvement may carry special weight in countries where the Bank is known to have a knowledge advantage resulting from a long-standing credit relationship. A complicating factor, however, is that the World Bank, as a development bank, has far broader objectives than simply to ensure loan repayment. A World Bank guarantee therefore is a somewhat noisy signal of the Bank's faith in the commercial merits of the undertaking. Also, a problem is that credit appraisal is a public good. Co-financing and partial credit guarantees to some extent lead to fragmentation on the creditor side. With multiple creditors, each individual creditor has a smaller incentive to thoroughly evaluate a project. This pushes up required interest rates. A benefit of having multiple creditors, however, is that risk can be allocated more efficiently. World Bank guarantees, to the extent that they spread risk, should be expected to lead to lower credit terms.

The seniority of World Bank-guaranteed payments

Next, it is important to consider the relative seniority of guaranteed and nonguaranteed payments. The World Bank has a most preferred creditor status, which makes World Bank guaranteed payments more senior than the nonguaranteed payments. A World Bank guarantee pertaining to some payments thus makes the other, nonguaranteed payments less valuable – for a given repayment capacity. The earnings flowing from a particular project can indeed be taken to represent a given, fixed debt servicing capacity. The relative seniority of guaranteed and nonguaranteed payments thus is most relevant, if the project can be seen in isolation. The nonguaranteed payments, however, in practice are often covered by a sovereign guarantee and thus are sovereign debt. A country's overall debt servicing capacity is only slightly affected by the success or failure of a specific project. Thus the relative seniority of guaranteed and nonguaranteed payments flowing from a particular project may only slightly affect the value of the nonguaranteed debt.⁷

The acceleration of World Bank guaranteed payments

The interest rate on the nonguaranteed debt further depends on specific contractual features of the transaction. One such feature is whether or not the Bank guarantee is accelerable. The World Bank guarantee is accelerable, if it can be called following the default on a previous nonguaranteed payment. (Below, World Bank guaranteed principal payments are accelerable in the

Chinese Ertan Hydroelectric II and Yangzhou Thermal Power projects.) To consider the implications for debt pricing, consider the case where the Bank provides an accelerable guarantee for the final bullet payment on a coupon bond. In this instance, the Bank's guarantee is callable, if the project defaults on any previous interest coupon payment. The acceleration is not likely to affect the value of the guaranteed bullet payment, as a future payment guaranteed by the Bank is equivalent to a payment today (of equal present value). Upon the exercise of the guarantee, the World Bank immediately has a claim on the country. The country thus is in arrears with the Bank, unless the Bank is directly reimbursed. This chain of events makes a default on a nonguaranteed coupon payment more costly, and hence less likely. The presence of the acceleration clause in this instance makes the nonguaranteed coupon payments more valuable, giving rise to a lower coupon rate. Another important feature of the transaction relates to exactly which interest and principal payments are covered by the World Bank guarantee. To illustrate this, consider the three Chinese power projects where the World Bank guarantees some far-out principal payments, but none of the coupon payments. In the far-out years, the nonguaranteed payments to private creditors thus only represent coupon payments. These coupon payments are based on the flexible 6-month dollar LIBOR interest rate. These coupon payments thus are flexible and risky, or at least are in a different risk class from the principal payments.

Negotiations or bidding procedures

Next, note that even if World Bank guarantees create 'value,' this may not lead to lower interest rates, if the value is captured by the private creditors rather than by the borrowing project and country. In this regard, it is important how interest rates are established. In case the borrower and World Bank negotiate with few prospective private creditors, these creditors are likely to capture some of the value created by the World Bank guarantee. This would dampen or eliminate any downward effect on interest rates. Alternatively, private creditors make bids under competitive conditions. In this instance, the value created by the loan guarantees should be passed on to the borrower in the form of lower credit terms. For all partial credit guarantee deals closed so far, interest rates have in practice been established through competitive bidding procedures.

Transaction costs

Finally, World Bank guarantees may carry large transaction costs relative to straightforward loans. The guarantee deals are relatively complex, and may require a fair amount

of learning by private market participants and by borrower governments that are asked to provide a counter-guarantee. Transaction costs may be relatively high at the time of closing, as well as at the time a guarantee is called, as then the guaranteed party has to provide evidence to the World Bank that the guarantee applies. Transaction costs thus may dissipate any value created by World Bank guarantees. Also, note that transaction cost considerations may render negotiating about credit terms more attractive than organizing a competitive bidding system.

4. *Calculating credit term externalities*

This section 'strips' a group of five transactions involving World Bank partial credit guarantees to arrive at (I) the interest rate paid on the nonguaranteed part of the credit, and (II) the duration of the nonguaranteed credit. The stripping procedure is as follows. Let 0 be the period of initial disbursement, and n the final payment period. Let B_t be the payment at time t covered by a World Bank partial credit guarantee. In the cases considered below, these guaranteed payments are all principal payments, but in general they can be interest payments as well.⁸ As a first step, we calculate the present value as of period 0 of the stream of guaranteed payments B_t . To arrive at an appropriate discount rate for these Bank-guaranteed payments, we consider the yields that the World Bank pays at the time it has issued 5-year and 10-year dollar-denominated bonds directly (see World Bank, 1996). (This yield was 10 basis points above 10-year U.S. Treasury on September 7, 1993, 9 basis points above 5-year U.S. Treasury on September 14, 1994, and 20 basis points above 10-year U.S. Treasury on July 17, 1995.) These yield data, plus information on the exact origination month of the guarantee transaction, plus information about yields on 5-year and 10-year U.S. Treasuries at that time are used to 'interpolate' an appropriate discount rate for the guaranteed payments stream. Once the Bank-guaranteed payments are accounted for, what remains is a stream of nonguaranteed payments, C_t , to the bank. In practice, these nonguaranteed payments include interest and principal payments; also the nonguaranteed payment is negative if a disbursement takes place that exceeds the interest repayment, as is the case at period 0 . Next, we compute the implicit interest rate on the nonguaranteed credit. This interest rate is the interest rate that makes the present value of all nonguaranteed payments, C_t , equal to (minus) the present value of the guaranteed payments, B_t .

Note that the contractual interest rate (the coupon rate in case of a bond) is in-between the yield applied to World Bank guaranteed payments, and the implicit interest rate on nonguaranteed

credit. For example, if the World Bank yield is lower than the coupon rate, then the implicit interest rate on nonguaranteed payments exceeds the coupon rate. We also wish to check whether the presence of the World Bank guarantee has stretched the available nonguaranteed credit. A useful summary measure of the average maturity of a stream of payments is the duration, defined as the weighted average of the time periods till individual payments are due, with the weights being the present value shares of the individual payments. Formally, duration is given by:

$$\frac{\sum_{t=1}^n \left[\frac{C_t}{(1+r_t)^t} \right] t}{\sum_{t=1}^n \frac{C_t}{(1+r_t)^t}}$$

where r_t is the computed interest rate on the nonguaranteed credit.⁹ Note that duration equals maturity n for a discount bond with a single payment due n periods from now, but it is less than n for any other financial instrument. Duration is a useful concept for a creditor in assessing repayment risk, as it indicates the average number of periods the creditor has to wait for the payments due. The concept of duration, as a index of maturity, makes it possible to compare the average maturity of two financial instruments with entirely different repayment profiles.¹⁰

In four out of the five cases below, the contractual interest rate is not fixed, but rather a flexible rate defined as a fixed spread above the 6-month LIBOR dollar rate. In these instances, the base interest rate used in the computations of the contractual coupon payments is the 5-year dollar swap interest rate as of the month of loan origination. This approximation is made, as a full swap yield curve stretching out 15 years is not available. But it is useful to know how sensitive the computed nonguaranteed interest rate and duration are to the value of the swap interest rate, as an approximation of future LIBOR rates. To see this, two alternative sets of calculations are presented, based on swap interest rates that are 5 basis points higher or lower than the swap interest rate used in the base-line calculations.

Summary information on all five projects is presented in table 1. The calculated nonguaranteed interest rates and durations in the table are premised on the base-line swap interest rates. Column (1) provides data for the Jordanian telecommunications project. This transaction involves a \$50 million bond issue, with a final bullet repayment after seven years. The semi-annual interest is flexible at 1.1 percent above LIBOR. The World Bank guarantee only covers the bullet repayment. The Jordanian state does not guarantee the interest payments. The present value of the bullet payment is estimated to represent 65.85 percent of the face value of \$50 million. The

Table 1 Summary of Financing with World Bank Partial Credit Guarantee

	Project				
	Telecommunications, Jordan (1)	Leyte-Luzon Geothermal Power, Philippines (2)	Yangzhao Thermal Power, China (3)	Zhejiang Power Development, China (4)	Ertan Hydroelectric II, China (5)
Financial closure	9/95	7/94	5/94	3/95	9/95
Amount (US\$, millions)	50	100	90	100	100
Form of credit	Bonds	Bonds	Bank loan	Bank loan	Bank loan
Maturity/grace (years)	7/7	15/15	15/5	15/5	15/5
Interest rate (percent)	LIBOR + 1.1	9.75, fixed	LIBOR + 0.4	LIBOR + 0.345	LIBOR + 0.3
Bank guarantee coverage	Final bullet repayment	Final bullet repayment	Principal year 10.5-15	Principal year 11-15	Principal year 12-15
Sovereign guarantee on non-Bank guaranteed payments	No	Yes	Yes	Yes	Yes
Payments guaranteed by Bank (percentage of face value)	65.85	34.03	19.42	17.43	14.45
Interest on non-guaranteed credit (percent)	Swap rate + 7.60	12.23	Swap rate + 0.80	Swap rate + 0.76	Swap rate + 0.56
Duration of non-guaranteed credit (years)	3.21	5.50	5.65	5.77	6.21

Source: see appendix for underlying data sources.

nonguaranteed interest rate is computed to be equivalent to an annualized 7.60 percent above the 5-year swap interest rate. The nonguaranteed credit duration is 3.21 years, which is considerably less than the 7-year maturity of the entire bond. The coupon payments, not guaranteed by the Jordanian state, are purely private debt, and therefore do not lend themselves to a comparison with Jordanian sovereign credits.

Next, column (2) relates to the geothermal power project at Leyte-Luzon, operated by the National Power Corporation in the Philippines. This transaction is again a bond, with a single bullet repayment at the end. The semi-annual coupon rate is fixed at 9.75 percent. The present value of the bullet payment is estimated to be \$34.03 million. The nonguaranteed interest rate is estimated to be 12.23 percent, which is 4.93 percent over the 10-year U.S. Treasury yield. The nonguaranteed credit duration is a relatively modest 5.5 years, compared to the 15-year maturity of the overall instrument. The Philippines also guarantee the coupon payments, which renders these coupon payments sovereign debt. It is thus possible to compare the sovereign yield of 4.93 above 10-year U.S. Treasury for this transaction to yields for other sovereign credits to the Philippines.¹¹ Comparable sovereign dollar-denominated bonds, contracted by the Philippines in the last several years, are represented in table 2. The two bonds to the National Power Corporation of 11/93 and of 7/95 are most relevant, as these two bonds are issued by the same borrower and have a roughly

Table 2 Publicly Guaranteed Bonds, Philippines

	<u>Borrower</u>				
	Development Bank of the Philippines	PNOC - Energy development company	National Power Corporation	Philippine National Bank	National Power Corporation
Commitment	7/93	10/93	11/93	12/93	7/95
Amount (US\$, millions)	175	90	200	150	150
Maturity (years)	5	5	7	3	7
Duration (years)	3.56	3.67	5.57	2.77	5.36
Interest rate (percent)	8.000	7.250	7.625	6.250	9.139
Spread over 5-year U.S. Treasury (percent)	3.570	3.070	3.110	2.110	3.250
Spread over 10-year U.S. Treasury (percent)	2.190	1.920	1.910	0.860	2.860

Source: see appendix for underlying data sources.

comparable duration of about 5.5 years.¹² Bonds issued by the same borrower should be subject to roughly the same commercial risks. Let us assume the two National Power Corporation bonds in table 2 were issued at par. Then we see in the last row of the table that these bonds carry yields of 1.91 and 2.86 percent above the 10-year U.S. Treasury yield, respectively. These relatively low spreads above the U.S. Treasury yield suggest that the World Bank guarantee, in the case of the Leyte-Luzon project, has increased rather than reduced the nonguaranteed sovereign credit yield.

Finally, columns (3) - (5) in table 1 present data for the three Chinese power projects (Yangzhou, Zhejiang, and Ertan Hydroelectric II). In all three cases, the borrowers can draw down the committed loan amount over a three-year period. In the calculations, however, it is assumed that the entire loan amount is disbursed immediately at time 0.¹³ The three transactions have similar repayment profiles, with semi-annual repayments starting after year five. The World Bank only guarantees some final principal payments. Note that the number of principal payments covered by the World Bank guarantee goes down from 10 to 9 to 7 for the three projects. Contractual spreads (over LIBOR) also display a downward trend. Both trends suggest that, with time, private capital providers look more favorably on this type of deal. The present value of Bank-guaranteed principal payments ranges from 14.45 to 19.42 percent of the loan's face value, depending mostly on how many principal payments are Bank-guaranteed. Calculated nonguaranteed loan spreads above the 5-year swap interest rate are in all three cases between 0.5 and 1.0 percent. These estimates imply that the nonguaranteed spreads exceed the hybrid contractual spreads. This is consistent with the

observation that the hybrid yields exceed the World Bank yield. The duration of nonguaranteed credits is around six years.

Next, we compare the computed nonguaranteed spreads to spreads on other sovereign credits to China. There have in fact been many credits to the Chinese authorities directly, and to companies within China covered by public repayment guarantees. As a benchmark, the People's Republic of China borrowed \$ 3.7 billion from financial institutions in 1995 at a spread of 0.5 above LIBOR, with final repayment after 7 years. The best Chinese borrowers are directly state-owned banks or banks with strong ties to Beijing. The People's Construction Bank, for instance, has received several large credits in 1993 at a spread of 0.00 above LIBOR, and also the Bank of China tends to borrow at that rate. Commercial ventures in China that borrow with public guarantees tend to obtain spreads above LIBOR in the 0-2 percent range. Many commercial ventures that borrow with public guarantees thus pay higher spreads than the central government. A possible reason for this is that public guarantees for commercial debts may not be fully credible. To limit the set of comparables, we focus on publicly guaranteed credits to utilities from international financial institutions in the period 1994-95. Contractual terms for four comparables are represented in table 3.¹⁴ The major difference between the guarantee deals and the comparables is the credit amounts involved.¹⁵ The spreads on the comparable loans are in the 0.5-1.1 percent range, which is very similar to the range of nonguaranteed spreads computed above. There is thus no evidence that World Bank guarantees have favorably influenced the nonguaranteed sovereign yields.

Table 3 Flexible Rate Credits to Chinese Utilities from Financial Institutions, 1994-95

	Unknown	<u>Borrower</u>		
		Nan Nian Electricity Co.	Zhejiang Xintang Electricity Generating Co.	Shenyang Rensuan Gas Ltd.
Commitment	4/94	5/94	1/95	9/95
Amount (millions of U.S. dollars)	36.0	2.0	7.0	1.2
First principal repayment	12/95	6/96	2/96	2/97
Maturity	12/95	6/98	2/02	1/06
Spread over LIBOR (percent)	1.099	0.5	1.0	0.5

To conclude this section, we wish to see how sensitive the calculated nonguaranteed interest rates and durations in table 1 are to the underlying swap interest rates (for the four Jordanian and Chinese transactions). Specifically, we redo the calculations now using swap interest rates that are, alternatively, 5 basis points higher and lower than the swap rates used for table 1. The results are represented in table 4. For the Jordanian transaction, we see that varying the swap interest rate by a total of 10 basis points produces a variation in the nonguaranteed interest rate (as a spread above the swap rate) of 35 basis points (i.e. 7.77 - 7.42). This relatively large sensitivity of the calculated nonguaranteed interest rate to the underlying swap rate reflects that the present value of payments guaranteed by the Bank (as a percentage of face value) is rather large at 65.85. For the three Chinese cases, varying the swap rate by 10 basis points only produces a variation of 4 or 5 basis points in the calculated nonguaranteed interest rate (as a spread above the swap rate). From the table, we further see that the duration of the nonguaranteed credit for all four cases is rather insensitive to a 10-basis point variation in the underlying swap interest rate. Overall, the table confirms that a lower assumed swap interest rate gives rise to a lower nonguaranteed interest rate and a higher nonguaranteed duration. For the Chinese cases, however, rather large (and unrealistic) drops in the assumed swap rate are necessary to significantly 'improve' the calculated nonguaranteed interest rates and durations.

Table 4 Sensitivity Analysis as to the Swap Interest Rate

	Telecommunications, Jordan	<u>Project</u> Yangzhao Thermal Power, China	Zhejiang Power Development, China	Ertan Hydroelectric II, China
Swap rate 5 basis points higher:				
Interest on non-guaranteed credit above swap rate(percent)	7.77	0.82	0.78	0.58
Duration of non- guaranteed credit (years)	3.20	5.64	5.76	6.20
Swap rate 5 basis points lower:				
Interest on non-guaranteed credit above swap rate (percent)	7.42	0.77	0.73	0.54
Duration of non- guaranteed credit (years)	3.22	5.66	5.78	6.22

Source: see appendix for underlying data sources.

The difference between the calculated interest rate on nonguaranteed credit and the yield on World Bank bonds reflects the riskiness of the nonguaranteed debt (relative to World Bank bonds). As such, this interest rate spread is an indicator of the value of the World Bank guarantee to the private creditor.¹⁶ The interest rate calculations of this section thus can be a basis for calculating market-based guarantee premia for World Bank partial credit guarantees.¹⁷ As an aside, the value of partial credit guarantees to a private creditor probably is far greater than the cost of this partial credit guarantee to the Bank. The reason is that coverage by a World Bank partial credit guarantee increases the value of the sovereign credit guarantee, simply because the country is more likely to make good on its counter-guarantee to the World Bank that it is on a public credit guarantee to the international private creditor. Essentially, the preferred creditor status of the World Bank enables it to 'make a profit' by selling partial credit guarantees for more than it charges the country. This reasoning, however, only applies to the deal under consideration. Specifically, this reasoning does not take into account that a World Bank partial credit guarantee can only make a credit more senior by making other credits more junior. These considerations become important if a sizable share of a country's credit is covered by World Bank guarantees.

5. *Conclusion*

This paper has examined whether World Bank partial guarantees also improve the credit terms related to the nonguaranteed part of the credit transaction. On the basis of existing cases, there is no evidence that World Bank partial credit guarantees have improved the associated nonguaranteed credit terms. Also, World Bank partial credit guarantees do not appear to increase the duration of the nonguaranteed financing. It should be noted that the analysis of this paper has been limited to only 5 concluded partial credit guarantee transactions. A clearer picture of the sign of the interest externality of World Bank guarantees can only emerge through the analysis of new cases. Strip analysis of guarantee transactions, however, can be done equally well before as after the deal is closed. By performing such analysis routinely, the World Bank can weed out deals that fail to generate favorable credit terms on the nonguaranteed credit. This paper recommends that interest and duration analysis along these lines is made a standard part of evaluating potential World Bank guarantee transactions.

Appendix: Data sources

Yields on U.S. Treasury bonds and LIBOR interest rates are from the International Financial statistics, International Monetary Fund.
Yields of World Bank bonds are from World Bank (1996).
Data on credit terms of public debts are from the Debtor Reporting System, World Bank.
Credit terms on transactions involving World Bank guarantees are from the World Bank.
Swap interest rates are from Datastream.

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¹ Loan guarantees provided by national authorities are quite prominent, for instance in the form of deposit insurance. For some of the broader implications of national credit guarantees, see Brock (1994, 1996), and Klein (1996).

² Within the World Bank Group, the Multilateral Investment Guarantee Agency (MIGA) has provided investment risk insurance or guarantees since April 1988. For a description of the scope and scale of the activities of MIGA, see MIGA(1994).

³ While this paper focuses on credit terms, in future work it may be interesting to consider how guarantees affect shareholders, consumers, tax revenues, etc.

⁴ Demirgüç-Kunt and Maksimovic (1996) present an analysis of the causes of the dearth of long term finance in developing countries.

⁵ A full appraisal is undertaken if it is not clear whether the World bank will provide a loan or a guarantee.

⁶ Ill-informed creditors, however, may conceivably infer that World Bank involvement taints the government as a credit risk.

⁷ The provision of sovereign guarantees, however, can be expected to affect the pricing of all public debt to the extent that it represents an increase in the government's overall net liability.

⁸ In all cases, guarantee premia are paid by the borrower, and thus do not enter the calculation of the interest rate received by the creditor.

⁹ See Sinkey (1986, p. 71).

¹⁰ In the end, both creditors and debtors, of course, care about the entire disbursement and repayment profile rather than just about summary measures such as duration and maturity.

¹¹ Malekpour (1994, paragraph 25) anticipated a similarly high nonguaranteed rate when the Leyte-Luzon transaction was under discussion in 1994.

¹² It should be clear that the comparables are never identical as to instrument characteristics and timing.

¹³ This assumption is made to make the duration calculations meaningful. The alternative assumption of a linear semi-annual drawdown from year 0 to year 2.5, however, has a small impact on computed non-guaranteed yields. In fact, the non-guaranteed spreads rise to 0.94, 0.89, and 0.64 for the Yangzhou, Zhejiang, and Ertan Hydroelectric II cases, respectively. Relatively minor commitment, management, and agency fees are also not taken into account. Note that such fees probably also apply to public debts not involving World Bank guarantees.

¹⁴ No duration calculations are presented, as full information about disbursement and repayment profiles is missing.

¹⁵ Huizinga (1996) finds that interest spreads on bank loans to private creditors in developing countries are negatively related to loan amounts.

¹⁶ Of course, here we have to control for different durations.

¹⁷ The spread between non-guaranteed and guaranteed credits has been used as a measure of the value of the guarantee in other settings. For a description of research along these lines, see Merton and Bodie (1992), and Mody and Patro (1996).

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